AMENDMENTS TO THE CLAIMS

1. **(Original)** A lipopeptide comprising a polypeptide conjugated to one or more lipid moieties wherein:

(i) said polypeptide comprises an amino acid sequence that comprises:

(a) the amino acid sequence of a T helper cell (Th) epitope and the amino acid sequence of a cytotoxic T cell (CTL) epitope, wherein said amino acid sequences are different; and

(b) one or more internal lysine residues or internal lysine analog residues for covalent attachment of each of said lipid moieties via the epsilon-amino group or terminal side-chain group of said lysine or lysine analog; and

(ii) each of said one or more lipid moieties is covalently attached to an epsilon-amino group of said one or more internal lysine residues or to a terminal side-chain group of said one or more internal lysine analog residues.

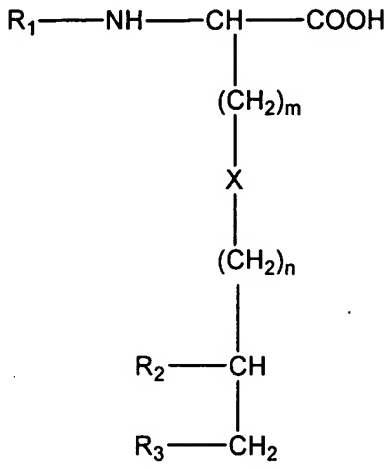
2. **(Original)** The lipopeptide of claim 1 wherein the lipid is attached to the epsilon-amino group of a lysine residue.

3. **(Currently amended)** The lipopeptide of claim 1 ~~or 2~~ wherein the internal lysine residue to which a lipid moiety is attached is positioned between the Th epitope and the CTL epitope.

4. **(Currently amended)** The lipopeptide of claim 1 ~~or 2~~ wherein the internal lysine residue to which a lipid moiety is attached is positioned within the Th epitope.

5. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 4~~ wherein the lipid moiety has a structure of General Formula (VII):

Formula (VII)



wherein:

(i) X is selected from the group consisting of sulfur, oxygen, disulfide (-S-S-), and methylene (-CH_2-), and amino (-NH-);

(ii) m is an integer being 1 or 2;

(iii) n is an integer from 0 to 5;

(iv) R_1 is selected from the group consisting of hydrogen, carbonyl (-CO-), and R'-CO- wherein R' is selected from the group consisting of alkyl having 7 to 25 carbon atoms, alkenyl having 7 to 25 carbon atoms, and alkynyl having 7 to 25 carbon atoms, wherein said alkyl, alkenyl or alkynyl group is optionally substituted by a hydroxyl, amino, oxo, acyl, or cycloalkyl group;

(v) R_2 is selected from the group consisting of R'-CO-O-, R'-O-, R'-O-CO-, R'-NH-CO-, and R'-CO-NH-, wherein R' is selected from the group consisting of alkyl having 7 to 25 carbon atoms, alkenyl having 7 to 25 carbon atoms, and alkynyl having 7 to 25 carbon atoms, wherein said alkyl, alkenyl or alkynyl group is optionally substituted by a hydroxyl, amino, oxo, acyl, or cycloalkyl group; and

(vi) R_3 is selected from the group consisting of R'-CO-O-, R'-O-, R'-O-CO-, R'-NH-CO-, and R'-CO-NH-, wherein R' is selected from the group consisting of alkyl having 7 to 25 carbon atoms, alkenyl having 7 to 25 carbon atoms, and alkynyl having 7 to

25 carbon atoms, wherein said alkyl, alkenyl or alkynyl group is optionally substituted by a hydroxyl, amino, oxo, acyl, or cycloalkyl group and wherein each of R_1, R_2 and R_3 are the same or different.

6. **(Original)** The lipopeptide of claim 5 wherein X is sulfur; m and n are both 1; R1 is selected from the group consisting of hydrogen, and R'-CO-, wherein R' is an alkyl group having 7 to 25 carbon atoms; and R2 and R3 are selected from the group consisting of R'-CO-O-, R'-O-, R'-O-CO-, R'-NH-CO-, and R'-CO-NH-, wherein R' is an alkyl group having 7 to 25 carbon atoms.

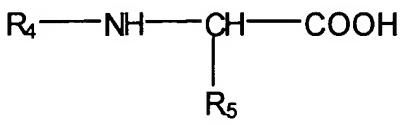
7. **(Original)** The lipopeptide of claim 6 wherein R' is selected from the group consisting of: palmitoyl, myristoyl, stearoyl, lauroyl, octanoyl, decanoyl, and cholesterol.

8. **(Currently amended)** The lipopeptide of claim 5 ~~according to any one of claims 5 to 7~~ wherein the lipid is contained within a lipoamino acid moiety selected from the group consisting of: Pam1Cys, Pam2Cys, Pam3Cys, Chol2Lys, Ste2Cys, Lau2Cys, and Oct2Cys.

9. **(Original)** The lipopeptide according to claim 8 wherein the lipoamino acid moiety is Pam2Cys.

10. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 4~~ wherein the lipid moiety has the following General Formula (VIII):

Formula (VIII)



wherein:

(i) R_4 is selected from the group consisting of: (i) an alpha-acyl-fatty acid residue consisting of between about 7 and about 25 carbon atoms; (ii) an alpha-alkyl-beta-

hydroxy-fatty acid residue; (iii) a beta-hydroxy ester of an alpha-alkyl-beta-hydroxy-fatty acid residue; and (iv) a lipoamino acid residue; and

(ii) R_5 is hydrogen or the side chain of an amino acid residue.

11. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 10~~ wherein the lipid moiety is separated from the peptide moiety by a spacer.

12. **(Original)** The lipopeptide of claim 11 wherein the spacer comprises arginine, serine or 6-aminohexanoic acid.

13. **(Currently amended)** The lipopeptide of claim 11 ~~or 12~~ wherein the spacer consists of a serine homodimer.

14. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 13~~ wherein the internal lysine or internal lysine analog is nested within a synthetic amino acid sequence having low immunogenicity.

15. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 14~~ wherein the T-helper epitope is a T-helper epitope of influenza virus haemagglutinin or a T-helper epitope of canine distemper virus F (CDV-F) protein.

16. **(Original)** The lipopeptide of claim 15 wherein the T-helper epitope of influenza virus haemagglutinin comprises the amino acid sequence set forth in SEQ ID NO: 1.

17. **(Original)** The lipopeptide of claim 15 wherein the T-helper epitope of CDV-F protein comprises the amino acid sequence set forth in SEQ ID NO: 20.

18. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 17~~ wherein the CTL epitope is from an immunogenic protein, lipoprotein, or glycoprotein of a virus.

19. **(Original)** The lipopeptide according to claim 18 wherein the virus is influenza virus.

20. **(Original)** The lipopeptide of claim 19 wherein the CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 2.

21. **(Original)** The lipopeptide according to claim 18 wherein the virus is hepatitis C virus.

22. **(Original)** The lipopeptide of claim 21 wherein the CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 176.

23. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 17~~ wherein the CTL epitope is from an immunogenic protein, lipoprotein, or glycoprotein of a prokaryotic organism.

24. **(Original)** The lipopeptide according to claim 23 wherein the CTL epitope is from *Listeria monocytogenes*.

25. **(Original)** The lipopeptide of claim 24 wherein the CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 172.

26. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 17~~ wherein the CTL epitope is from an immunogenic protein, lipoprotein, or glycoprotein of a eukaryotic organism.

27. **(Original)** The lipopeptide according claim 26 wherein the eukaryotic organism is a parasite.

28. **(Original)** The lipopeptide according to claim 26 wherein the eukaryotic organism is a mammal.

29. **(Original)** The lipopeptide according to claim 28 wherein the CTL epitope is from an ovalbumin protein of a mammal or a tumor cell.

30. **(Original)** The lipopeptide according to claim 29 wherein the CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 173.

31. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 30~~ wherein the polypeptide comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 174, SEQ ID NO: 175 and SEQ ID NO: 177.

32. **(Currently amended)** The lipopeptide of claim 1 ~~according to any one of claims 1 to 31~~ capable of upregulating the surface expression of MHC class II molecules on immature dendritic cells (DC).

33. **(Original)** The lipopeptide of claim 32 wherein the DC are D1 cells.

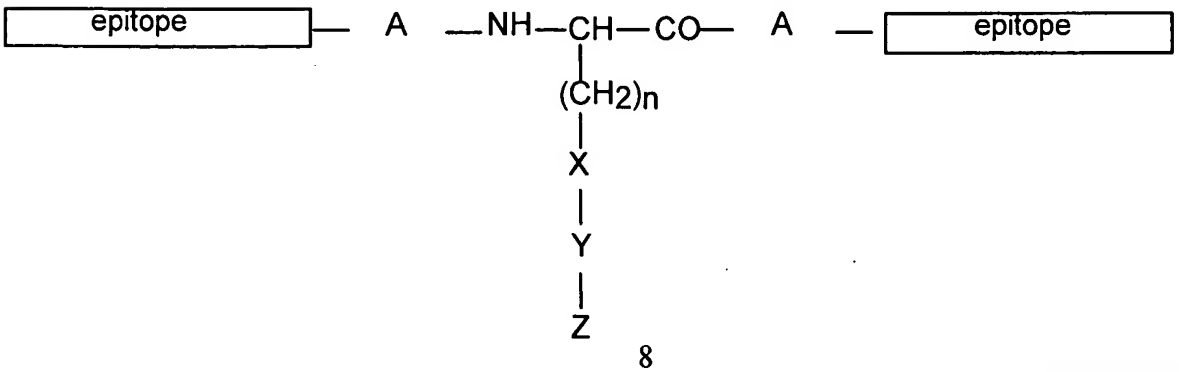
34. **(Original)** A lipopeptide comprising a polypeptide conjugated to one or more lipid moieties wherein:

(i) said polypeptide comprises an amino acid sequence that comprises:
(a) the amino acid sequence of a T helper cell (Th) epitope and the amino acid sequence of a CTL epitope, wherein said amino acid sequences are different; and
(b) one or more internal lysine or lysine analogue residues for covalent attachment of each of said lipid moieties via the epsilon-amino group of said one or more lysine or lysine analogue residues;

(ii) each of said one or more lipid moieties is covalently attached to an epsilon-amino group of said one or more internal lysine residues; and

(iii) said lipopeptide has the general Formula (VI):

Formula (VI):



wherein:

epitope is a T-helper epitope or CTL epitope;

A is either present or absent and consists of an amino acid spacer of about 1 to about 6 amino acids in length;

n is an integer having a value of 1, 2, 3, or 4;

X is a terminal side-chain group selected from the group consisting of NH, O and S;

Y is either present of absent and consists of an amino acid spacer of about 1 to about 6 amino acids in length; and

Z is a lipid moiety.

35. **(Original)** The lipopeptide of claim 34 wherein A is absent.

36. **(Currently amended)** The lipopeptide of claim 34 ~~or 35~~ wherein Y is present and consists of a serine homodimer.

37. **(Currently amended)** The lipopeptide of claim 34 ~~according to any one of claims 34 to 36~~ wherein Z is selected from the group consisting of: Pam_1Cys, Pam_2Cys, Pam_3Cys, $Chol_2Lys$, Ste_2Cys, Lau_2Cys, and Oct_2Cys.

38. **(Currently amended)** The lipopeptide of claim 34 ~~according to any one of claims 34 to 37~~ capable of upregulating the surface expression of MHC class II molecules on immature dendritic cells (DC).

39. **(Original)** The lipopeptide of claim 38 wherein the DC are D1 cells.

40. **(Original)** A method of producing a lipopeptide comprising:

(i) producing a polypeptide comprising an amino acid sequence that comprises:

the amino acid sequence of a T helper cell (Th) epitope and the amino acid sequence of a CTL epitope, wherein said amino acid sequences are different; and

one or more internal lysine residues or internal lysine analog residues; and

(ii) covalently attaching each of said one or more lipid moieties directly or indirectly to an epsilon-amino group of said one or more internal lysine residues or to the terminal side-chain group of said one or more internal lysine analog residues so as to produce a lipopeptide having the lipid moiety attached to the epsilon amino group of said internal lysine residue or having the lipid moiety attached to the terminal side-chain group of said internal lysine analog residue.

41. **(Original)** The method of claim 40 wherein the polypeptide is synthesized by a chemical synthesis means.

42. **(Currently amended)** The method of claim 40 ~~or 41~~ further comprising producing the lipid moiety.

43. **(Original)** The method of claim 42 comprising synthesizing the lipid moiety as a lipoamino acid.

44. **(Original)** The method according to claim 43 further comprising adding a spacer to the amino acid moiety of the lipoamino acid.

45. **(Original)** The method according to claim 44 wherein the spacer comprises an arginine homodimer or serine homodimer or 6-aminohexanoic acid .

46. **(Currently amended)** The method of claim 44 ~~or 45~~ comprising adding the spacer to the lipoamino acid via the terminal carboxy group in a process that comprises performing a condensation, addition, substitution, or oxidation reaction.

47. **(Currently amended)** The method of claim 44 ~~according to any one of claims 44 to 46~~ wherein the spacer comprises a terminal protected amino acid residue to facilitate conjugation of the lipoamino acid to a polypeptide.

48. **(Original)** The method of claim 47 further comprising de-protecting the terminal protected amino acid of the spacer and conjugating the lipoamino acid to a polypeptide.

49. **(Original)** The method of claim 43 comprising adding a spacer to a non-modified epsilon amino group of the polypeptide in a process comprising performing a nucleophilic substitution reaction.

50. **(Original)** The method of claim 49 wherein the polypeptide has an amino acid sequence comprising a single internal lysine or lysine analog residue and a blocked N-terminus.

51. **(Currently amended)** The method according to claim 49 ~~or 50~~ wherein the spacer comprises an arginine homodimer or serine homodimer or 6-aminohexanoic acid .

52. **(Currently amended)** A composition comprising the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ and a pharmaceutically acceptable excipient or diluent.

53. **(Original)** The composition of claim 52 further comprising a biologic response modifier (BRM).

54. **(Currently amended)** A method of eliciting an immune response in a subject comprising administering the lipopeptide of claim 1 ~~according to any one of claims 1 to 39 or the composition according to claim 52 or claim 53~~ to said subject for a time and under conditions sufficient to elicit a cytotoxic T cell response against a CTL epitope in the lipopeptide.

55. **(Original)** The method according to claim 54 wherein the lipopeptide is administered intranasally to the subject.

56. **(Original)** The method according to claim 54 wherein the lipopeptide is administered to the subject by injection.

57. **(Original)** A method of immunizing a subject against influenza virus comprising administering to said subject a lipopeptide comprising a polypeptide conjugated to one or more lipid moieties, wherein:

(i) said polypeptide comprises:

(a) the amino acid sequence of a T helper cell (Th) epitope and the amino acid sequence of a CTL epitope of an influenza virus protein, and wherein said amino acid sequences are different;

(b) one or more internal lysine residues or internal lysine analog residues for covalent attachment of each of said lipid moieties via an epsilon-amino group of said internal lysine or via a terminal side-chain group of said internal lysine analog; and

(c) each of said one or more lipid moieties is covalently attached directly or indirectly to an epsilon-amino group of said one or more internal lysine residues or to a terminal side-chain group of said one or more internal lysine analog residues; and

(ii) said lipopeptide is administered for a time and under conditions sufficient to elicit a CTL response to said CTL epitope.

58. **(Original)** The method of claim 57 wherein the lipopeptide is administered in combination with a pharmaceutically acceptable excipient or diluent.

59. **(Currently amended)** The method of claim 57 ~~or 58~~ wherein immunological memory is generated against the CTL epitope.

60. **(Currently amended)** The method of claim 57 ~~according to any one of claims 57 to 59~~ wherein the CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 2.

61. **(Currently amended)** The method of claim 57 ~~according to any one of claims 57 to 60~~ wherein the T-helper epitope comprises an amino acid sequence as set forth in SEQ ID NO: 1 or SEQ ID NO: 20.

62. **(Currently amended)** The method of claim 57 ~~according to any one of claims 57 to 61~~ wherein the lipid moiety comprises a lipoamino acid selected from the group consisting of: (i) Pam_1Cys; (ii) Pam_2Cys; (iii) Pam_3Cys; and (iv) $Chol_2Lys$.

63. **(Original)** The method according to claim 62 wherein the lipid moiety comprises the lipoamino acid Pam_2Cys.

64. **(Currently amended)** The method of claim 57 ~~according to any one of claims 57 to 63~~ further comprising producing the lipopeptide.

65. **(Currently amended)** The method of claim 57 ~~according to any one of claims 57 to 64~~ further comprising determining the immune response of the subject using a sample taken previously from the subject.

66. **(Currently amended)** A vaccine against an influenza virus comprising the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ wherein the CTL epitope is from an influenza virus protein.

67. **(Currently amended)** Use of the lipopeptide according to claim 1 ~~any one of claims 1 to 39~~ in the preparation of a vaccine against an influenza virus.

68. **(Original)** A method of immunizing a subject against hepatitis C virus comprising administering to said subject a lipopeptide comprising a polypeptide conjugated to one or more lipid moieties, wherein:

(i) said polypeptide comprises:

(a) the amino acid sequence of a T helper cell (Th) epitope and the amino acid sequence of a CTL epitope of a hepatitis C virus protein, and wherein said amino acid sequences are different;

(b) one or more internal lysine residues or internal lysine analog residues for covalent attachment of each of said lipid moieties via an epsilon-amino group of said internal lysine or via a terminal side-chain group of said internal lysine analog; and

(c) each of said one or more lipid moieties is covalently attached directly or indirectly to an epsilon-amino group of said one or more internal lysine residues or to a terminal side-chain group of said one or more internal lysine analog residues; and

(ii) said lipopeptide is administered for a time and under conditions sufficient to elicit a CTL response to said CTL epitope.

69. **(Original)** The method of claim 68 wherein the lipopeptide is administered in combination with a pharmaceutically acceptable excipient or diluent.

70. **(Currently amended)** The method of claim 68 ~~or 69~~ wherein immunological memory is generated against the CTL epitope.

71. **(Currently amended)** The method of claim 68 ~~according to any one of claims 68 to 70~~ wherein the CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 176.

72. **(Currently amended)** The method of claim 68 ~~according to any one of claims 68 to 71~~ wherein the T-helper epitope comprises an amino acid sequence as set forth in SEQ ID NO: 20.

73. **(Currently amended)** The method of claim 68 ~~according to any one of claims 68 to 72~~ wherein the lipid moiety comprises a lipoamino acid selected from the group consisting of: (i) Pam_1Cys; (ii) Pam_2Cys; (iii) Pam_3Cys; and (iv) $Chol_2Lys$.

74. **(Original)** The method according to claim 73 wherein the lipid moiety comprises the lipoamino acid Pam_2Cys.

75. **(Currently amended)** The method of claim 68 ~~according to any one of claims 68, to 74~~ further comprising producing the lipopeptide.

76. **(Currently amended)** The method of claim 68 ~~according to any one of claims 68 to 75~~ further comprising determining the immune response of the subject using a sample taken previously from the subject.

77. **(Currently amended)** A vaccine against a hepatitis C virus comprising the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ wherein the CTL epitope is from a hepatitis C virus protein.

78. **(Original)** Use of the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ in the preparation of a vaccine against an hepatitis C virus.

79. **(Original)** A method of immunizing a subject against *Listeria monocytogenes* comprising administering to said subject a lipopeptide comprising a polypeptide conjugated to one or more lipid moieties, wherein:

(i) said polypeptide comprises:

(a) the amino acid sequence of a T helper cell (Th) epitope and the amino acid sequence of a CTL epitope of a *Listeria monocytogenes* protein, and wherein said amino acid sequences are different;

(b) one or more internal lysine residues or internal lysine analog residues for covalent attachment of each of said lipid moieties via an epsilon-amino group of said internal lysine or via a terminal side-chain group of said internal lysine analog; and

(c) each of said one or more lipid moieties is covalently attached directly or indirectly to an epsilon-amino group of said one or more internal lysine residues or to a terminal side-chain group of said one or more internal lysine analog residues; and

(ii) said lipopeptide is administered for a time and under conditions sufficient to elicit a CTL response to said CTL epitope.

80. **(Original)** The method of claim 79 wherein the lipopeptide is administered in combination with a pharmaceutically acceptable excipient or diluent.

81. **(Currently amended)** The method of claim 79 ~~or 80~~ wherein immunological memory is generated against the CTL epitope.

82. **(Currently amended)** The method of claim 79 ~~according to any one of claims 79 to 81~~ wherein the CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 172.

83. **(Currently amended)** The method of claim 79 ~~according to any one of claims 79 to 82~~ wherein the T-helper epitope comprises an amino acid sequence as set forth in SEQ ID NO: 20.

84. **(Currently amended)** The method of claim 79 ~~according to any one of claims 79 to 83~~ wherein the lipid moiety comprises a lipoamino acid selected from the group consisting of: (i) Pam_1Cys; (ii) Pam_2Cys; (iii) Pam_3Cys; and (iv) $Chol_2Lys$.

85. **(Original)** The method according to claim 84 wherein the lipid moiety comprises the lipoamino acid Pam_2Cys.

86. **(Currently amended)** The method of claim 79 ~~according to any one of claims 79 to 85~~ further comprising producing the lipopeptide.

87. **(Currently amended)** The method of claim 79 ~~according to any one of claims 79 to 86~~ further comprising determining the immune response of the subject using a sample taken previously from the subject.

88. **(Currently amended)** A vaccine against *Listeria monocytogenes* comprising the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ wherein the CTL epitope is from a *Listeria monocytogenes* protein.

89. **(Currently amended)** Use of the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ in the preparation of a vaccine against Listeria monocytogenes.

90. **(Original)** A method of prophylaxis or therapy of cancer comprising administering to said subject a lipopeptide comprising a polypeptide conjugated to one or more lipid moieties, wherein:

(i) said polypeptide comprises:

(a) the amino acid sequence of a T helper cell (Th) epitope and the amino acid sequence of a tumor-specific CTL epitope, wherein said amino acid sequences are different;

(b) one or more internal lysine residues or internal lysine analog residues for covalent attachment of each of said lipid moieties via an epsilon-amino group of said internal lysine or via a terminal side-chain group of said internal lysine analog; and

(c) each of said one or more lipid moieties is covalently attached directly or indirectly to an epsilon-amino group of said one or more internal lysine residues or to a terminal side-chain group of said one or more internal lysine analog residues; and

(ii) said lipopeptide is administered for a time and under conditions sufficient to elicit a CTL response to said CTL epitope.

91. **(Original)** The method of claim 90 wherein the lipopeptide is administered in combination with a pharmaceutically acceptable excipient or diluent.

92. **(Currently amended)** The method of claim 90 ~~or 91~~ wherein immunological memory is generated against the CTL epitope.

93. **(Currently amended)** The method of claim 90 ~~according to any one of claims 90 to 92~~ wherein the tumor-specific CTL epitope comprises the amino acid sequence set forth in SEQ ID NO: 173.

94. **(Currently amended)** The method of claim 90 ~~according to any one of claims 90 to 93~~ wherein the T-helper epitope comprises an amino acid sequence as set forth in SEQ ID NO: 20.

95. **(Currently amended)** The method of claim 90 ~~according to any one of claims 90 to 94~~ wherein the lipid moiety comprises a lipoamino acid selected from the group consisting of: (i) Pam_1Cys; (ii) Pam_2Cys; (iii) Pam_3Cys; and (iv) $Chol_2Lys$.

96. **(Original)** The method according to claim 95 wherein the lipid moiety comprises the lipoamino acid Pam_2Cys.

97. **(Currently amended)** The method of claim 90 ~~according to any one of claims 90 to 96~~ further comprising producing the lipopeptide.

98. **(Currently amended)** The method of claim 90 ~~according to any one of claims 90 to 97~~ further comprising determining the immune response of the subject using a sample taken previously from the subject.

~~99~~. **(Currently amended)** A prophylactic or therapeutic vaccine against cancer comprising the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ wherein the CTL epitope is a tumor-specific CTL epitope.

100. **(Currently amended)** Use of the lipopeptide of claim 1 ~~according to any one of claims 1 to 39~~ in the preparation of a prophylactic or therapeutic vaccine against cancer.